AMENDMENTS TO THE CLAIMS

The following Listing of Claims, with amendments to claims 1, 6 and 9, and cancellation of claim 11, will replace all prior versions, and listings, of claims in the application. *No new matter is introduced as a result of the following claim amendments.*

Listing of Claims:

1 (Currently Amended).   A method for comparing and matching a first set of digital data to at least a second set of digital data, comprising:

using a computer graphics card for raster transforming at least one of the first set of digital data and the second set of digital data said raster transformations including combinations of rotations, scales, perspective transforms, and translations;

depending upon the results of a pixel acceptance test performed by an acceptance tester included in the computer graphics card, performing a statistical comparison between at least part of the first set of digital data and at least part of the second set of digital data using a statistical processor included in the computer graphics card; and

wherein the statistical comparison includes statistically comparing and matching the raster transformed sets of digital data to appropriately corresponding portions of each other using the statistical processor.

2 (Previously Presented).   The method of claim 1, further comprising using the statistical processor for analyzing the statistical comparisons and using the computer graphics card for generating new transformations for matching the sets of data.

3 (Previously Presented).   The method of claim 1, further comprising using the statistical processor for statistically comparing the raster transformed sets of digital data until a match or non-match between the first and second sets of data is achieved.

4 (Original).   The method of claim 1, wherein the raster transforming comprises raster transforming at least one of the first or the second set of digital data and computing statistics on the transformation.

5 (Original).   The method of claim 4, wherein statistically comparing and matching comprises analyzing the computed statistics of the transformation and calculating new and different transformations on the digital data.

6 (Currently Amended).   A method for comparing and matching a first set of digital data to at least a second set of digital data, comprising:
    loading at least one of the first and second sets of digital data into a first memory device;
    using a 3D graphics rendering device for rendering model transformations and accumulating statistics of the loaded digital data, said 3D graphics rendering device modified to include a statistical processor, and said model transformations including combinations of rotations, scales, perspective transforms, and translations;
    adjusting the model transformations based on the accumulated statistics; and
    statistically comparing and matching the model transformations of the loaded set of digital data to appropriately corresponding portions of the other set of digital data.

7 (Original).   The method of claim 6, further comprising statistically comparing the sets of digital data until a match or non-match between the first and second sets of data is achieved.

8 (Previously Presented).   The method of claim 6, wherein adjusting the model transformations comprises analyzing the statistical comparisons and generating new transformations for matching the sets of data.

9 (Currently Amended).   A system for tracking digital templates of a digital scene defined by plural images, comprising:

a computer graphics card including a raster processor that transforms at least one of the templates, <u>said transforms including combinations of rotations, scales, perspective transforms, and translations</u>;

a statistics enable switch included in the computer graphics card, wherein accumulation of information for each digital template is enabled when said statistics enable switch is enabled, and wherein said computer graphics card provides the at least one transformed template to a frame buffer included in the computer graphics card when said statistics enable switch is disabled;

a statistical compare processor included in the computer graphics card that accumulates information for each digital template and statistically compares and matches images associated with the templates for tracking the templates based on the accumulated information when said statistics enable switch is enabled; and

wherein the statistical compare processor allows use of pixel alpha values for weighting statistical information used by the statistical compare processor for simultaneously and statistically comparing and matching images associated with the templates for tracking the templates.

10 (Previously Presented). The system for tracking digital templates of claim 9, wherein the computer graphics card further comprises an address generator that generates addresses for the template and the image that are to be compared.

11 (Cancelled).

12 (Previously Presented). The system for tracking digital templates of claim 10, wherein the addresses serve as input to filtering functions that read from the images to be compared and generate color values.

13 (Previously Presented). The system for tracking digital templates of claim 9, wherein the template comprises a group of pixels of the image and wherein the computer graphics card further includes an acceptance tester preprogrammed to decide whether to allow a pixel of the template to contribute to the statistics.

14 (Previously Presented). The system for tracking digital templates of claim 13, wherein if the pixel is permitted to contribute, the color values are sent to the statistical compare processor for statistical analyses and comparison processing.

15 (Previously Presented). The system for tracking digital templates of claim 14, wherein the statistical compare processor contains variables that are updated for each pixel based on the input color values of each pixel.

16 (Original). The system for tracking digital templates of claim 15, wherein the statistical analyses compares and matches the template to the image by initially defining a function that estimates the similarity between the template and the image.

17 (Original). The system for tracking digital templates of claim 16, wherein the template is located in the image by computing the function at various locations in the image and determining where the function is maximized.

18 (Cancelled).

19 (Original). The system for tracking digital templates of claim 9, wherein the raster processor renders the template at a plurality of offsets for allowing the raster processor to at least one of determining a desired position for the template and accumulate information to analytically compute a desired update.

20 (Original). The system for tracking digital templates of claim 19, wherein the offsets are fractional perturbations to vertices of the templates.